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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/976,082	10/12/2001	Chung-En Kao	67,200-530	1556

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EXAMINER

VERSTEEG, STEVEN H

ART UNIT	PAPER NUMBER
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1753

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DATE MAILED: 11/08/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/976,082

Applicant(s)

KAO, CHUNG-EN

Examiner

Steven H VerSteeg

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 October 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 October 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference characters "21" and "26" have both been used to designate "target" (see 006). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.
2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "40" has been used to designate both "small gap" (see 007) and "wafer lifter" (see 031). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.
3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description: D and P. A proposed drawing correction, corrected drawings, or amendment to the specification to add the reference sign(s) in the description, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

4. The abstract of the disclosure is objected to because "An" should be "A" in line 1. Correction is required. See MPEP § 608.01(b).
5. The disclosure is objected to because of the following informalities: "component" should be "components" at 005, line 1.

Appropriate correction is required.

6. The use of the trademark ENDURA has been noted in this application. It should be capitalized wherever it appears and be accompanied by the generic terminology.

Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks.

Claim Objections

7. Claim 2 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 2 recites the limitation that the platform is defined by a slanted shoulder portion of the support finger, but claim 1 already claims the limitation.
8. Claim 13 is objected to because of the following informalities: "step" should be deleted in claim 13, line 4. Appropriate correction is required.

Claim Rejections - 35 USC § 112

9. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

10. Claims 10-16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
11. Claim 10 recites the limitation "said top portion" in line 14. There is insufficient antecedent basis for this limitation in the claim.

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12. Claims 11-16 depend from claim 10 and contain all of the limitations of claim 10.

Therefore, claims 11-16 are rejected for the same reasons as claim 10.

Claim Rejections - 35 USC § 102

13. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

14. Claims 1-5, 7-11, 13, and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by US 5,958,198 to Banholzer et al. (Banholzer).

15. For claim 1, Applicant requires a wafer lifter for self-centering a wafer on a pedestal comprising a lifter body of annular shape having a center cavity with a diameter larger than the diameter of a wafer; at least four support fingers emanating upwardly from the lifter body and spaced-apart from each other; and a platform on a top portion of each support finger defined by a slanted surface from a vertical plane of an outside surface of the support finger. The platform leaves substantially no gap between the slanted surfaces and the outer periphery of the wafer.

16. For claim 10, Applicant requires a method for self-centering a wafer on a wafer pedestal comprising: providing a wafer lifter comprising a lifter body of annular shape having a center cavity with a diameter larger than a diameter of the pedestal; at least four support fingers; and a platform on a tip portion of the fingers defined by a slanted surface from a vertical plane of an outside surface of the finger such that there is substantially no gap between the slanted surface and the outer periphery of a wafer; positioning a wafer on the lifter; and lifting the wafer lifter to position over the wafer pedestal.

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17. Banholzer discloses and a method for placing the substrate on the pedestal and has a wafer support ring 52 and wafer lifters (col. 5, l. 26-28) comprising a lifter body of annular shape having a center cavity with a diameter larger than the diameter of the wafer pedestal (Figure 5); four support fingers 56; and platform 54 defined by slanted surfaces from a vertical plane 66. There is substantially no gap between the slanted surface and the outer periphery of the wafer (Figure 5).
18. For claim 2, Applicant requires the platform to be defined by a slanted portion of the support finger. As noted above, the slanted portion 66 defines the platform 54.
19. For claim 3, Applicant requires the base of the slanted portion to define a diameter of a circular area surrounded by the platforms of the at least four support fingers which is not larger than a diameter of the wafer when measured at 23 Celsius. As can be seen from Figure 5, the wafer and the platform are the same diameter. Thus, the diameter of the platform is not larger than the wafer.
20. For claim 4, Applicant requires the fingers to be equally spaced apart. As can be seen from Figure 5, the fingers are equally spaced apart.
21. For claim 5, Applicant requires the gap between the platform and wafer to be smaller than 0.5 mm. As can be seen from Figure 5, the wafer is snug and thus, there is no gap.
22. For claims 7 and 14, Applicant requires four support fingers. As can be seen from Figure 5, there are four support fingers.
23. For claim 8, Applicant requires the support fingers to be at 90-degree angles from a horizontal plane of the lifter body. As can be seen from Figure 6, the fingers are at a 90-degree angle from the horizontal plane of the lifter body.

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24. For claim 9, Applicant requires the lifter body to be ring shape. As can be seen from Figure 5, the lifter body is ring shaped.

25. For claim 11, Applicant requires lowering the fingers to place the wafer on the pedestal. As can be seen from Figure 1, the wafer lifter retracts so that the wafer rests on the pedestal.

26. For claim 13, Applicant requires the slanted surfaces to guide the wafer to the platform on the fingers. Banholzer discloses the same limitation (col. 5, l. 26-31).

Claim Rejections - 35 USC § 103

27. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

28. Claims 6, 12, 15, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 5,958,198 to Banholzer et al. (Banholzer) in view of US 5,114,556 to Lamont, Jr.

29. For claims 6 and 15, Applicant requires the lifter body to be formed of a material that has a rigidity of at least that of aluminum. For claim 16, Applicant requires the lifter body to be made of aluminum or stainless steel.

30. For claim 12, Applicant requires sputter depositing a metal layer on a top surface of the wafer. The wafer is used in a sputtering process (col. 1, l. 20-29).

31. Banholzer is described above, but does not disclose the material of the lift member or the material sputter deposited.

32. Lamont, Jr. discloses that to prevent contamination of a wafer during sputtering, all components within the sputter chamber should be coated with the material to be deposited (col.

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11, l. 1-7). Lamont, Jr. discloses that to process a semiconductor wafer (col. 8, l. 30-40), a target of aluminum is sometimes used (col. 7, l. 29-34).

33. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the invention of Banholzer to utilize aluminum as the target material to sputter deposit it onto the wafer because of the desire to process a semiconductor substrate.

34. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the invention of Banholzer to use aluminum as the material for the lift body because of the desire to prevent contamination when sputtering aluminum.

Conclusion

In the event that papers are missing from this communication, please contact the Customer Service Center for Technology Center 1700 at (703) 306-5665.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven H VerSteeg whose telephone number is (703) 305-4473. The examiner can normally be reached on Mon - Thurs (7:30 AM - 6:00 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam X Nguyen can be reached on (703) 308-3322. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

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A handwritten signature in black ink, appearing to read 'Steven H. VerSteeg', with a long horizontal flourish extending to the right.

Steven H VerSteeg
Primary Examiner
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shv

November 7, 2002